

CONFIDENTIAL

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21 February 1956

P-101B

25X1

MEMORANDUM FOR: THE RECORD

SUBJECT : Beam Interference (Feedback) Tests on the IR  
Communications Unit IS-1 [ ]

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1. Time and Place: 13-14 February 1956, New London, Connecticut

2. Discussion:

a. Five IS-1's were taken to [ ] in an effort to determine the feasibility of duplex operation of IR commo systems. The five equipments arrived in good condition and numerous tests were conducted both day and night under good weather conditions.

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b. Range for all tests was approximately  $\frac{1}{4}$  mile. Two transceivers were used on either end and each was individually aligned. Optical centers were approximately 15" apart. Beam overlap was proved by receiving with both units on one end while transmitting from either unit on the other end.

c. During initial tests it appeared that some feedback was present, though not sufficient to render communications impossible. Experimentation showed this feedback to be caused by acoustical coupling rather than beam coupling.

d. It was found that at least one transceiver's telescope was not collimated as the beam and cross hairs were off approximately 25 feet at  $\frac{1}{4}$  mile. When alignment was made optically, a phenomenon which sounded like distortion occurred. Signal level was down as would be expected. This distortion has been observed by [ ] also. A technical reason will be requested.

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[ ]  
TSS/APD

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Distribution:

1 - P-101B  
1 - Chrono  
1 - RTW

RW/lj

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